and 6.8% of patients, respectively) incurred MS-specific costs of $12,830, $14,348, and $17,028/employee, respectively. Finally, employees in Quintile 5 (highest cost, 4.4%, n = 34) incurred MS-specific costs of $26,048/employee. Only 18% of Quintile 1 had DMT, all subjects in Quintiles 2–4 used DMTs, and 8.8% of Quintile 5 used no DMTs. Although not used for quintile assignments, "other conditions" costs/employee were higher in higher cost quintiles, and Quintile 5 non-MS drug costs/employee were 6.1–8.6 times higher than Quintiles 1–4. Similarly, indirect costs were generally higher in the more expensive quintiles. Average ages were similar between quintiles. Quintile 5 was only 47.1% female, while other quintiles were >60% female. Wide variation in MS-specific and non-specific costs exists among employees with MS. However, patients in the highest cost quintile may have the most severe disease, suffer from multiple conditions and receive other drug treatments. Further investigation is needed to understand the impact of comorbid conditions on severity.

PND18

HIGHER INPATIENT COSTS AMONG PATIENTS WITH SUBARACHNOID HEMORRHAGE COMPLICATED BY VASOSPASM

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OBJECTIVE: Vasospasm is a common complication of aneurysmal subarachnoid hemorrhage (SAH), but its economic impact has not been studied. In this study, we estimated the incremental impact of angiographic and clinical vasospasm on inpatient costs and length of stay (LOS) in a cohort of patients hospitalized for SAH. **METHODS:** The study cohort consisted of 198 consecutive patients who underwent either endovascular or surgical treatment for SAH at Duke University Medical Center (DUMC) from February 1999 to October 2004. Patients were divided into three subgroups: clinical (+angiographic) vasospasm (n = 64), angiographic vasospasm only (n = 51), and patients without vasospasm (n = 83). Direct and overhead inpatient costs were obtained from the DUMC cost accounting system. Costs for physician services were assigned using 2006 Medicare reimbursement rates for North Carolina based on CPT codes billed for physician services provided to patients in the study cohort. Generalized linear regression models were applied to assess the incremental impact of vasospasm on inpatient costs and LOS while adjusting for potentially confounding variables. A counterfactual approach was applied to estimate the adjusted mean cost difference between subgroups defined by the presence or absence of vasospasm. **RESULTS:** The adjusted incremental cost attributable to clinical vasospasm was $41,877, a 41% increase relative to no vasospasm (95% CI: 23–62%, $p < 0.0001$). Angiographic vasospasm was associated with a $24,528 incremental cost, a 24% increase (95% CI: 7–44%, $p = 0.0043$). LOS was estimated to be 6.3 days or 39% longer with clinical vasospasm (95% CI: 21–61%, $p < 0.0001$), and 4.5 days or 28% longer with angiographic vasospasm (95% CI: 9–50%, $p = 0.0026$) relative to no vasospasm. Higher costs related to vasospasm remained significant after adjusting for differences in LOS. **CONCLUSION:** Patients with clinical and/or angiographic vasospasm incur higher inpatient costs than those without due to longer hospital stays and receipt of higher intensity care.

PND19

THE ECONOMIC IMPACT OF ACUTE MEDICATION OVERUSE AMONG PATIENTS WITH MIGRAINE OR HEADACHE: A MANAGED CARE PERSPECTIVE

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OBJECTIVE: To determine the economic impact of acute medication overuse among members with migraine or headache enrolled in a large, national managed care organization (MCO). **METHODS:** Commercial MCO members with a diagnosis of migraine or headache and acute medication prescriptions from 2002–2006 comprised the study population. A novel claims-based algorithm based on literature review and clinical expert input was created to establish thresholds of potential overuse. Two cohorts were identified: members with evidence of acute medication overuse (MO) and members without evidence of medication overuse (non-MO). Cohorts were followed over variable time periods and compared on demographics, comorbidities, health care resource utilization and costs. **RESULTS:** A total of 17,202 individuals met the criteria for medication overuse, 45,659 comprised the non-MO cohort. Most MO patients met the criteria for medication overuse by exceeding the threshold for opiates (62%) or triptans (38%). The MO cohort had significantly greater migraine/headache-related and all-cause resource utilization compared with the non-MO cohort. On a per subject per month basis, all-cause medical costs for the MO cohort were $1236 compared with $185 for the non-MO cohort (<0.0001); all-cause pharmacy costs were $483 for the MO cohort and $105 for the non-MO cohort (<0.0001). For migraine/headache-related medical and pharmacy costs, total medical costs per subject per month were $209 for the MO cohort and $33 (<0.0001) for the non-MO cohort, while pharmacy costs were $286 for the MO cohort and $46 (<0.0001) for the non-MO cohort. **CONCLUSION:** Members of this MCO with migraine or headache who overused acute medications utilized more health care resources and incurred greater costs compared with members without acute medication overuse. These results suggest the possibility that alternate treatment strategies that decrease medication overuse may result in less health care resource utilization and lower costs.

PND20

ECONOMIC CONSEQUENCES OF MULTIPLE SCLEROSIS: A POPULATION-BASED STUDY

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OBJECTIVE: Little is known about medical expenditures in the multiple sclerosis population after the introduction of expensive disease modifying agents in the 1990s. This study examines new data from 2000–2005 population-based survey of MS to provide estimates of health services utilization by disease severity and controlling for other risk factors. **METHODS:** We used a subsample (n = 919) of patients with relapsing remitting and secondary progressive MS from the Sonya Slifka Longitudinal Multiple Sclerosis Study that follows a nationally representative cohort of MS patients. We examined utilization of hospital and outpatient care, emergency room (ER), therapy, mental health services, alternative medicine, home health and personal care. For most utilization categories, we used log-linear negative binomial regression models to estimate mean utilization, accounted for possible correlation of observations for the same person by using